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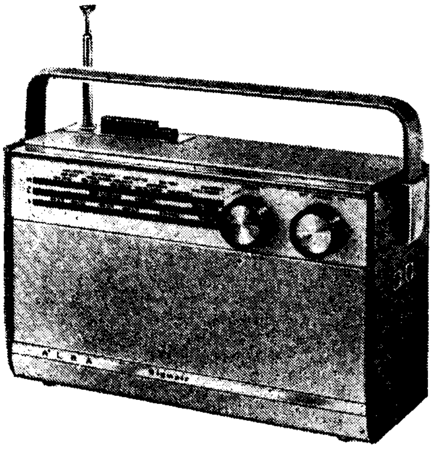
"TRADER" SERVICE SHEET

1743

ALBA 939 "Olympic"

Portable Transistor Radio Receiver



A PORTABLE radio receiver using seven transistors, the Alba 939 "Olympic" covers the short, medium and long wavebands and incorporates band selection and tone press-button controls.

Telescopic and ferrite rod aerials are built-in and a socket is provided for the connection of an external aerial. A second socket allows radio programmes to be fed into a tape recorder.

The circuit features separate oscillator and mixer transistors, and a transistor detector in place of the usual diode.

Two 9V dry batteries are required for operating power.

TRANSISTOR ANALYSIS

Transistor voltages given in the table below were taken from information supplied by the manufacturers. They were measured on a 20,000Ω/V testmeter and, except where otherwise stated, are negative with respect to chassis.

CIRCUIT ALIGNMENT

To carry out alignment procedure it is necessary to dismantle the receiver from the case. As this also removes the tuning scale from the receiver, calibration markers in the form of small holes are provided along the top of the scale backing plate. These holes (reading from right to left) represent (1) datum (maximum capacitance), (2) 600kc/s, (3) 8Mc/s, (4) 200kc/s, (5) 16Mc/s and (6) 1,500kc/s.

Equipment Required.—An a.m. signal generator; an audio output meter with an impedance to match 35Ω, a 14pF capacitor

(*Continued overleaf, col.* 1)

Transistor Table

Transistor		Emitter (V)	Base (V)	Collector (V)
TR1	AF115	0·8	1·0	7·0
TR2	AF115	1·4	1·5	7·0
TR3	AF117	1·4	1·6	6·2
TR4	OC70	—	—	3·6
TR5	OC81D	9·0	9·0	15·0
TR6	OC81	7·4	7·2	15·5
TR7	OC81	+1·0	+1·2	7·2

Resistors

R1	220kΩ	A2
R2	47kΩ	C2
R3	8·2kΩ	C2
R4	680Ω	C2
R5	100Ω	C2
R6	12kΩ	C2
R7	6·8kΩ	B2
R8	1·8kΩ	B2
R9	1kΩ	B2
R10	1·8kΩ	A3
R11	10kΩ	B2
R12	15kΩ	C3
R13	680Ω	C2
R14	1kΩ	C3
R15	330Ω	C2
R16	47kΩ	C3
R17	4·7kΩ	C2
R18	100Ω	C3
R19	100Ω	C3
R20	270Ω	C3
R21	330Ω	C3
R22	150Ω	C3
R23	27kΩ	C3
R24	10kΩ	C3
R25	680Ω	C3
R26	10Ω	B3
R27	330Ω	C3
R28	1·2kΩ	B3
R29	2·7kΩ	B3
R30	56Ω	B3
R31	2·7kΩ	B3
R32	56Ω	A3
R33	5Ω	B3
R34	5Ω	A3
VR1	20kΩ	A1

Capacitors

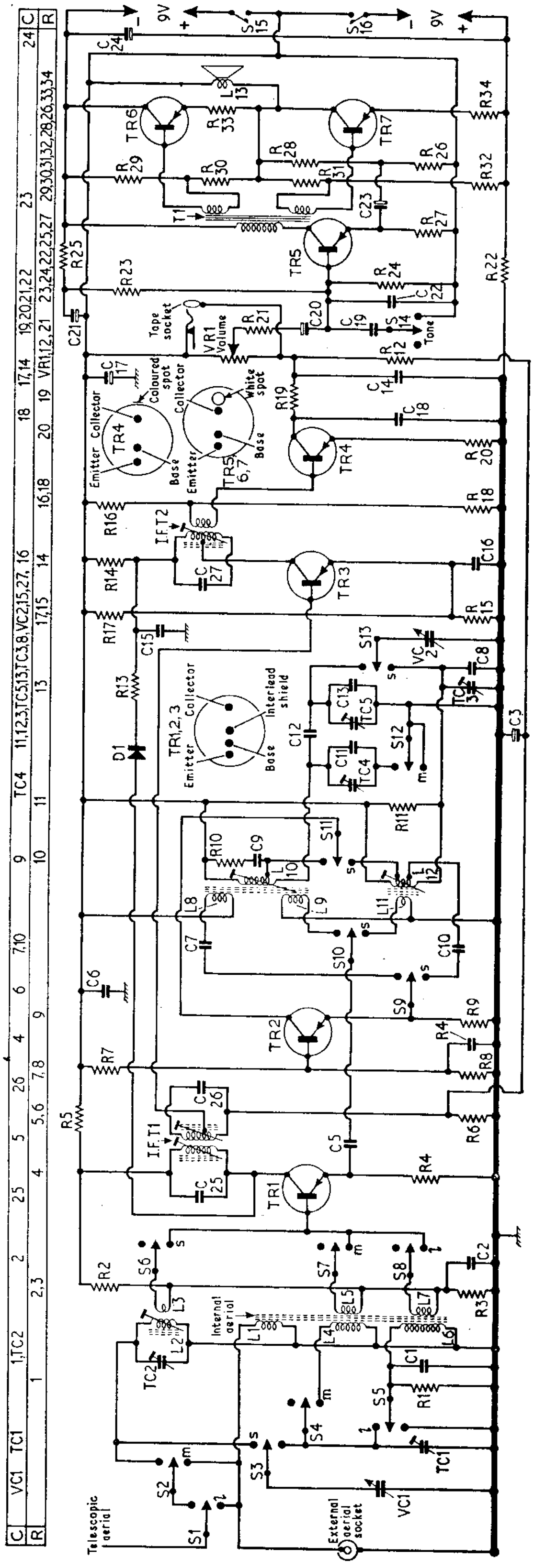
C1	120pF	A2
C2	0·047μF	B2
C3	16μF	C2
C4	0·047μF	B2
C5	0·1μF	C2
C6	0·22μF	B2
C7	0·22μF	A2
C8	20pF	B2
C9	100pF	A3
C10	1,000pF	B2
C11	260pF	B3
C12	400pF	B2
C13	10pF	B3
C14	0·01μF	C3
C15	0·047μF	C2
C16	0·5μF	C2
C17	250μF	C3
C18	0·01μF	C3
C19	6,800pF	C3
C20	8μF	B3
C21	50μF	C3
C22	0·01μF	B3
C23	100μF	B3
C24	100μF	A3
C25	560pF	C2
C26	560pF	C2
C27	250pF	C3
TC1	40pF	A2
TC2	40pF	B2
TC3	40pF	A2
TC4	110pF	B2
TC5	40pF	B3
VC1	—	C1
VC2	—	C1

Coils and Transformers

L1	—	B1
L2, L3	—	B2
L4, L5	—	C1
L6	—	B1
L7	—	B1
L8, L9, L10	—	A2
L11, L12	—	B2
L13	35Ω	—
IFT1	—	C2
IFT2	—	C3
T1	—	B3

Miscellaneous

D1	OA79	C2
S1-S14	—	A2
S15, S16	—	A1



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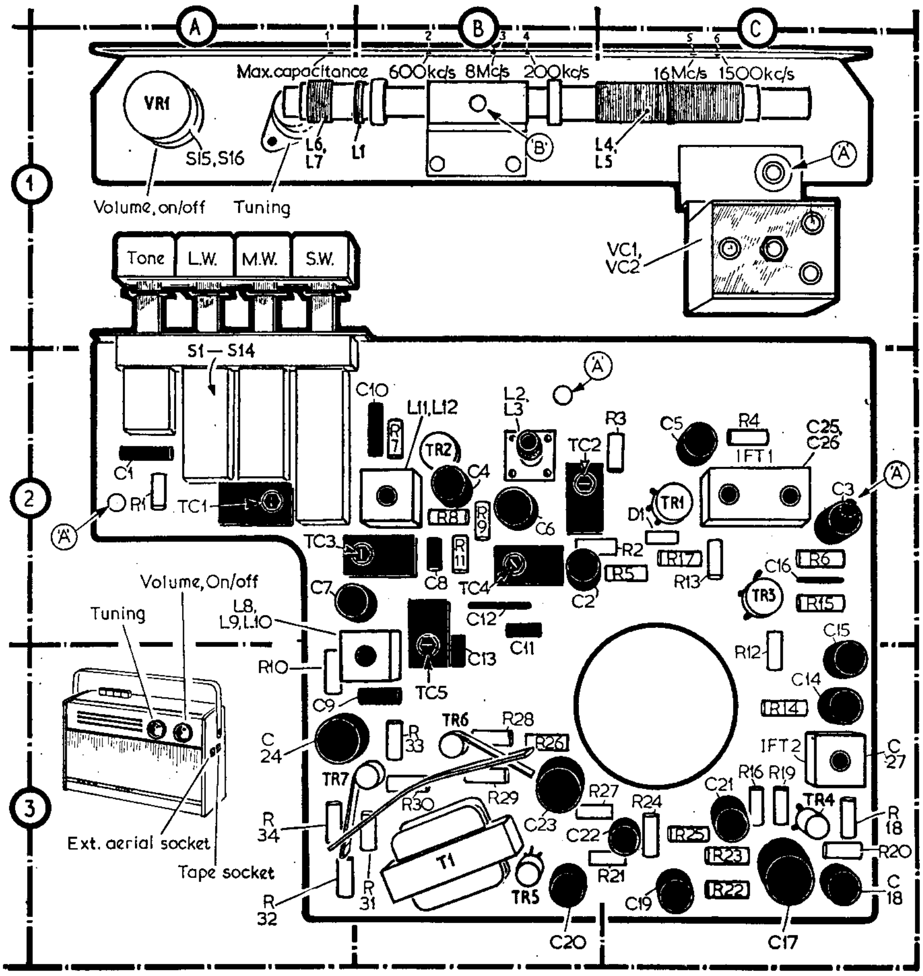


Component-side view of the printed circuit panel and control panel

Circuit Alignment—*continued*

and a length of insulated copper wire formed into an r.f. coupling loop.

1.—Connect the audio output meter across the loudspeaker. During alignment the input signal level should be adjusted to maintain a receiver output not exceeding 50mW with the volume control at maximum. Connect the signal generator across the tuning gang aerial section **VC1.**

2.—Switch receiver to l.w. and turn the tuning gang to the fully open position. Turn the volume control to maximum. Feed in a 470kc/s 30 per cent modulated signal, and adjust the cores of **IFT2** and **IFT1** for maximum output. Repeat, using a reduced signal input, for optimum results.

3.—Check i.f. and a.f. channel sensitivity as follows: with an input of 470kc/s 30 per cent modulated via a $0.1\mu F$ isolating capacitor, check that for an output of 50mW, an input of not greater than 60mV to **TR4** base, $200\mu V$ to **TR8** base or $11\mu V$ to **TR2** base is required (receiver tuned to 1Mc/s).

4.—Check that with the tuning gang fully meshed the cursor extension coincides with end calibration mark 1. Switch receiver to m.w. and tune to calibration mark 2.

5.—Connect the signal generator to the r.f. coupling loop and place the loop about 12 inches from the receiver, in line with the ferrite rod aerial. Feed in 600kc/s signal and adjust **L10** and **L4** for maximum output.

6.—Tune receiver to calibration mark 6. Feed in a 1,500kc/s signal and adjust **TC5** and **TC1** for maximum output.

7.—Repeat operations 5 and 6.

8.—Switch receiver to l.w. and tune to calibration mark 4. Feed in 200kc/s signal and adjust **TC4** and **L6** for maximum output. Repeat for optimum results.

9.—Switch receiver to s.w. Disconnect the telescopic aerial and connect the signal generator via the 14pF capacitor to the telescopic aerial input connection.

10.—Tune receiver to calibration mark 3. Feed in an 8Mc/s signal and adjust **L12** and **L2** for maximum output. (**L2** core is accessible from the foil side of the printed panel.)

11.—Tune receiver to calibration mark 5. Feed in a 16Mc/s signal and adjust **TC3** for maximum output.

Note: **TC3** should be tuned to the outer peak. To check, screw in the trimmer to find the inner peak, then return to the outer peak. Next adjust **TC2** a little at a time, retuning the gang each time, until there is no further increase in output.

GENERAL NOTES

Dismantling.—To remove the chassis assembly from the case, first remove the back cover by turning the two retaining clips half a turn inwards.

Take out the batteries and pull off the two front control knobs.

Take out the two Phillips-head screws securing the control panel to the inside of the cabinet front. (When replacing these screws, do not omit the shakeproof washers.)

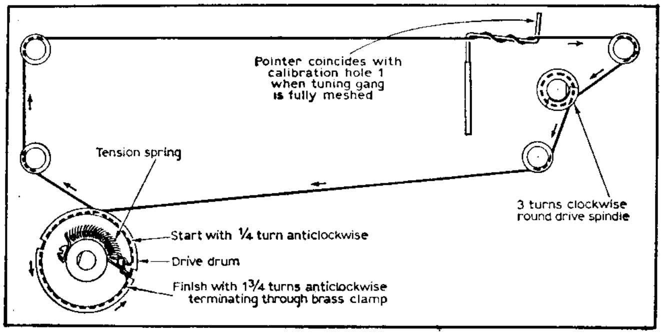
The assembly can now be withdrawn to the extent of the leads to the aerial and tape sockets. These may be unsoldered if required.

For complete removal, the loudspeaker leads should be pulled from their tags.

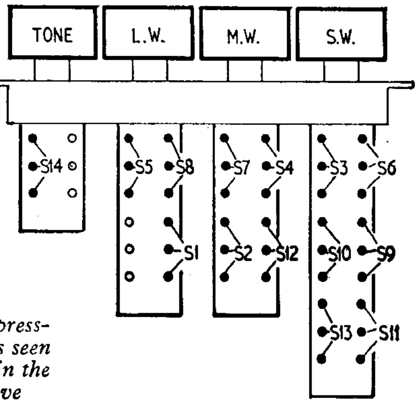
Note: When easing out the chassis, the right-hand battery clip may foul the drive pulley. The clip should be sprung back carefully to allow the pulley to pass. Also the rubber speaker cushion may inhibit chassis removal and this should be eased off to free it. It may be considered convenient to remove the telescopic aerial by removing the Phillips screw securing the aerial to the base of the case and pulling the aerial upwards out of the cabinet.

Switches.—Waveband switches **S1-S13** and tone switch **S14** are combined in a press-button assembly shown below. On the circuit diagram waveband switches are given code letters *s* (short), *m* (medium) and *l* (long), indicating their closed position when the short, medium or long wave button is depressed. The alternative position is taken up when the button is released.

Batteries.—Two 9V batteries are required: Ever Ready type PP7 or equivalent.


Pointer coincides with calibration hole 1 when tuning gang is fully meshed
Tension spring
Start with ¼ turn anticlockwise
Drive drum
Finish with 1¾ turns anticlockwise terminating through brass clamp
3 turns clockwise round drive spindle

Left: Sketch of the drive cord assembly showing method of routing a replacement cord



Right: Details of the press-button switch assembly as seen from the same angle as in the chassis illustration above

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